

PLATE V.

- Fig. 1.* *Ectinosoma melaniceps*, female (?), seen from right side, $\times 84$.
Fig. 2. Superior antenna, $\times 210$. *Fig. 3.* Lower antenna, $\times 210$.
Fig. 4. Mandible: *a*, origin of palp, $\times 300$. *Fig. 5.* Mandible-palp, $\times 300$. *Fig. 6.* Maxilla, $\times 300$. *Fig. 7.* Upper foot-jaw, $\times 300$. *Fig. 8.* Lower foot-jaw, $\times 300$. *Fig. 9.* Foot of first pair, $\times 210$. *Fig. 10.* Posterior abdominal segments and setæ, $\times 120$. *Fig. 11.* Foot of fifth pair, $\times 210$. *Fig. 12.* Maxillary appendage (?).
Fig. 13. *Dactylopus Normani*, superior antenna, $\times 210$. *Fig. 14.* Lower foot-jaw, $\times 210$. *Fig. 15.* Foot of first pair, $\times 210$. *Fig. 16.* Secondary branch of lower antenna, $\times 210$. *Fig. 17.* Fifth pair of feet, $\times 210$.

PLATE VI.

- Fig. 1.* *Laophonte Hodgii*, upper antenna of female, $\times 210$. *Fig. 2.* Upper antenna of male, $\times 210$. *Fig. 3.* Lower foot-jaw, $\times 210$.
Fig. 4. Foot of first pair, $\times 210$. *Fig. 5.* Foot of fourth pair, $\times 210$. *Fig. 6.* Fifth foot of female, $\times 250$. *Fig. 7.* Fifth foot of male, $\times 250$. *Fig. 8.* Caudal segment of female, $\times 250$.
Fig. 9. Caudal segment of male, $\times 210$.
Fig. 10. *Cletodes limicola*, female, seen from above, $\times 100$. *Fig. 11.* Upper antenna of female, $\times 250$. *Fig. 12.* Upper antenna of male, $\times 250$. *Fig. 13.* Lower foot-jaw, $\times 250$. *Fig. 14.* Foot of first pair, $\times 250$. *Fig. 15.* Foot of fifth pair, female, $\times 250$.
Fig. 16. Foot of fifth pair, male, $\times 250$. *Fig. 17.* Caudal segment of female, $\times 250$.

II.—*Further Observations on the Myology of Sarcophilus ursinus.* By ALEXANDER MACALISTER, M.B., Professor of Zoology, University of Dublin, and Director of the University Museum.

IN the 'Annals' for March 1870 I published an account of the dissection of a young female Tasmanian Devil. Since that time three specimens of this species have been brought alive to the Dublin Zoological Gardens. Two of these still live, and are in an exceedingly healthy condition; one, however, did not survive its imprisonment for more than a few months; and I have had the opportunity of making a careful examination of its muscles and of repeating my former observations.

As this second specimen was fresh, a male, and full-grown, it was in far better condition for examination than its predecessor in our dissecting-room, which was a salted specimen. This individual was 30 inches long, and his muscles were red, plump, and strong.

The platysma myoides, and indeed all parts of the panniculus carnosus, were very strong and red, contrasting decidedly with the weak undefined condition which they exhibited in
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the former specimen. The cervical portion of this muscle formed a thick strong sheet, which passed from the occipital and mastoid regions downwards and forwards, over the movable clavicle and over the humeral region, to be attached to the integument in the vicinity of the elbow. The dorsal and abdomino-lateral and femoral parts of the panniculus were particularly strong.

The muscles of mastication were exceedingly remarkable in their development. The masseter was distinctly bilaminar, the superficial portion being four times the size of the deeper; the directions of the two laminae were exceedingly oblique. The temporal was of enormous size, three times the size of the external masseter; the pterygoids were smaller, the external being exceedingly feeble; the internal was also small. The most expressive way of representing the enormous size of these muscles is by stating that the weights of the muscles which elevate the lower jaw (masseters, pterygoids, and temporals) were equal to the sum of the weights of all the scapular and brachial muscles (deltoids, spinates, biceps, brachiales, triceps, &c.), or to the entire series of muscles which act on the shoulder-joint (pectorals, latissimus dorsi, spinati, deltoids, &c.). This will give some idea of the power with which these formidable creatures can close their mouths. (However, the habits of the two specimens in the Zoological Gardens do not seem to indicate the great degree of ferocity for which the species has got credit.)

The trapezius arose from only four dorsal spines (in my other specimen it extended to seven); the clavicular portion was distinctly attached to the outer third of the clavicle. The central portion of the cervical and upper part of the muscle was directly continuous with the acromial (not the clavicular) deltoid; and, gliding over the shoulder, this portion was inserted into the lowest part of the deltoidal crest.

The latissimus dorsi was attached to the lowest five dorsal spines, and to the spines of three lumbar vertebræ, and only to the tip of the last rib: I was able to separate it clearly from the pectoralis quartus (from which it was not easily distinguished in the last specimen); its tendon of insertion was rather below that of the teres major.

Rhomboideus major was only attached to three dorsal spines. The serratus magnus arose from the seven upper ribs and the four lower cervical transverse processes; a detached slip arose from the second and third cervical transverse processes, and represented a levator scapulæ.

The cleido-mastoid was small and separate, one third the size of the sterno-mastoid.

There were two trachelo-acromiales muscles, as in the otter, one from the transverse process of the atlas to the outer half of the scapular spine; the other arose from the same process further back, and was inserted into the posterior third of the scapular spine. In the former specimen I missed the posterior portion of this muscle.

The supraspinatus is double the size of the infraspinatus, and equal to the subscapularis. There is a distinct small teres minor; I could not separate it in my former specimen. The subclavius was not only attached to the clavicle, but also extended beneath that bone to the spine of the scapula.

The deltoid consisted of three parts:—a clavicular, from the outer half of the clavicle (this I before thought was acromial); an acromial, continuous with the trapezius; and a scapular, from the metacromion and anterior half of the scapular spine.

The pectoralis quartus was a strap-like band from the linea alba of the abdomen (extending upwards for $\cdot 2$ of an inch from a point $\cdot 25$ above the umbilicus); its insertion is above that of the pectoralis minor.

The two tendons of the biceps were very closely tied together, and the main body of the muscle was radial in its insertion; yet there was a very slender ulnar slip. The biceps was twice the size of the brachialis ($\cdot 32$ oz. : $\cdot 16$ oz.). The extensor mass was very much in excess of the flexors ($1\cdot 67$ oz. : $0\cdot 48$ oz.). The anconæus externus was inseparable from the triceps, but the anconæus internus was very distinct. The palmaris was as described in my former paper.

A careful dissection satisfied me that the slip which I had before taken as a supinator longus was really only a slip of the panniculus carnosus—as it had no bony attachment, but was directly continuous with the continued slip of the platysma: the only supinator is the short one, which nearly equals in weight the pronator quadratus. The extensor secundus digitorum was only attached to the fourth and fifth digits; and the former digit had two tendons supplying it (in my former specimen there were four tendons—two to the fifth, one to the third, and one to the fourth). A separate slip (ulnaris quinti) existed, which arose with the extensor carpi ulnaris, and, passing in the groove in the annular ligament with the extensor minimi digiti, is inserted into the base of the fifth metacarpal bone.

The psoas magnus and the iliacus are easily separated from each other; these, taken together, are four times the size of the psoas parvus. The pectineus was not double, as it was in the former specimen. The upper slip of the obturator externus was semidetached from the rest of the muscle.

The quadratus femoris was very remarkable, arising from the transverse process of the first caudal vertebra, from the tuber ischii, and a tendinous band which passed from the one to the other. Gluteus minimus was easily separable from the medius. A very thin slip represented the obturator internus. Tensor vaginae femoris is separate and thin. Sartorius is exceedingly feeble. The biceps flexor cruris arises only from the tuber ischii and two caudal vertebrae.

The "bicipiti accessorius" was quite distinct at its origin, but joined at its insertion to the semitendinosus—which muscle was thus tricipital, having one head caudal overlapping the biceps, one ischiatic, and, thirdly, this accessorius. The two other heads are similar to those which exist for the same muscle in *Castor fiber*, *Atherura*, and the Otter. There is a middle head of the gastrocnemius, which joins the external.

The peronæi and tibial muscles were exactly similar to those in my former specimen. The foot-muscles were as follows:—Abductor ossis metatarsi minimi digiti, from the os calcis to the spur of the fifth metatarsal; abductor minimi digiti, a superficial muscle, with a short triangular belly and a long tendon, which arises from the external annular ligament over the peronæi tendons, and is inserted into the fascia over the flexor tendon of the little toe.

The lumbricales were six in number—one to the inner and one to the outer side of the outer toe, a similar pair for the fourth toe, a single internal muscle for the third and one for the second toes.

The rudimental hallux has two muscles—a flexor brevis, which extends from the scaphoid bone to the first phalanx, and an exceedingly fine triangular and superficial adductor, which arises superficial to the palmar interosseous muscle for the index toe, and is inserted into the inner side of the first phalanx of the hallux.

The interossei were three plantar and four dorsal, the former being (1) adductor indicis, (2) adductor quarti digiti, (3) adductor quinti digiti; the latter were (1) abductor indicis, (2) adductor tertii digiti, (3) abductor tertii, and (4) abductor quarti digiti.

The only other points worthy of note were the extension of the scalenus posticus to the upper four ribs, of the external oblique to the ten lowermost, the absence of ilio-costal fibres in the quadratus lumborum, an enormous triangularis sterni, a two-bellied depressor of the mandible, whose anterior portion is connected to and parallel with the genio-hyoid, with which it agrees in function.